REMARKS/ARGUMENTS

A Request for Continuing Examination of this application is submitted herewith. Reconsideration of this application is therefore respectfully requested.

In a brief telephonic interview of June 3, 2004, the Examiner reported to Applicant's attorney that Applicant's traversal of the rejections in the Office Action issued December 23, 2003 were unpersuasive because the Examiner gave no patentable weight to the limitations related to "Traffic Engineering", "Traffic Engineering Route Exchange router (TE-X)", or "Traffic Engineering Link-state Database (TE-LSDB)" on the grounds that without the limitation "Traffic Engineering" all the limitations of the claims read on the cited references. Applicant disagrees that an expressed limitation defined in the specification can be ignored. Applicant further disagrees that Dobbins et al, Dobbins et al. in view of Crawley et al., Dobbins et al. in view of Casey et al. or Dobbins et al. in view of Tappan read on the rejected claims.

Claim Rejections -35 U.S.C. § 102(b)

Claims 1-19; 13, 17, 20-29, 45 and 30-40 remain rejected under 35 U.S.C. 102(b) as being anticipated by Dobbins et al. While Applicant remains of the opinion that the rejection of the above-noted claims was traversed in Applicant's response filed March 11, 2004, Applicant is desirous in claiming only subject matter to which Applicant is entitled.

Consequently, claim 1 is canceled and claims 2, 3, 4, 8, 17, 25, 29, 30-32, 36, 38 and 39 are amended to clearly distinguish over the teachings of Dobbins et al. or to correct minor typographical errors.

Claim 3 is amended to claim a method of establishing explicit constrained edge-to-edge paths in an IP, MPLS or Optical network comprising steps of: provisioning at least one OSPF router in the network that supports constraint path setup with traffic engineering route exchange router (TE-X) functionality; sending traffic engineering link state advertisement (TE-LSA) messages directly via unicast from the OSPF routers to only the nearest one of the at least one TE-X, without flooding the TE-LSAs to other routers in the network, to permit each of the at least one TE-X to maintain a traffic engineering link-

state database (TE-LSDB); and querying the nearest one of the at least one TE-X to obtain an explicit edge-to-edge path satisfying specified traffic engineering (TE) constraints.

Dobbins et al. fail to teach or suggest provisioning at least one OSPF router in the network with traffic engineering route exchange router (TE-X) functionality. Dobbins et al. further fail to teach or suggest sending traffic engineering link state advertisement (TE-LSA) messages **directly via unicast** from OSPF routers to a nearest one of at least one TE-X, without flooding the TE-LSA to other routers in the network.

Dobbins et al. further fail to teach or suggest querying the nearest one of the TE-Xs to obtain an explicit edge-to-edge path satisfying specified traffic engineering constraint.

In the Response to Arguments, the Office Action appears to argue that all OSPF routers in the network of Dobbins et al. are TE-X routers. This is a clear misinterpretation of Dobbins et al. and an unwarranted mis-characterization of the instant claims.

Dobbins et al. teach that "topology services are built into every switch, which allows each switch to be completely autonomous in its behavior, it provides the necessary functionality across the entire switch fabric" (column 3, lines 39-42). "The protocol is optimized to work in a "flat" or non-hierarchical fashion" (column 3, lines 56-57). "Since each call-originating switch has a topology graph, each switch can determine the "best" path for the calls it originates" (column 3, lines 64-66).

It is clear to any person skilled in the art that the method claim in amended in claim 3 is not performed in a "flat network". At least one OSPF router in the network is provisioned with traffic engineering route exchange router functionality. OSPF routers in the network send link state advertisement messages directly via unicast to the nearest TE-X, without flooding the TE-LSA to other routers in the network. Consequently, the method of claim 3 creates a network that is not flat but hierarchical. Furthermore, it does not contain autonomous switches. The rejection of claims 1-9 and 13 is thereby traversed.

Claim 17 is likewise amended to define a traffic engineering route exchange router that receives traffic engineering link-state advertisement messages **directly via unicast** only from OSPF routers that have determined that the TE-X is the

nearest one of the TE-Xs in the network. Claim 17 is further amended to claim a messaging system to for exchanging TE-LSA messages with peer TE-Xs in the network using a bi-directional communications connection set up with each peer TE-X.

Dobbins et al. only teach the direct unicast of bearer traffic connections. In accordance with Dobbins et al., link state advertisement messages are flooded in the network. Although each switch is able to resolve broadcast packets at the switch access ports, rather than just tagging and flooding the broadcast packets in order to reduce the amount of broadcast traffic (column 5, lines 45-52), Dobbins et al. teach that the route resolution method is used by edge routers to autonomously resolve routes (without traffic engineering constraint). Dobbins et al. therefore neither teach nor suggest the subject matter claimed in amended claim 17 and the rejection of claims 17 and 20-29 is thereby traversed.

Claim 30 is amended to claim a novel method of reducing traffic engineering messaging loads in an OSPF network comprising the steps of: configuring at least one OSPF router in the OSPF network as a traffic engineering route exchange router (TE-X); provisioning the at least one TE-X to advertise to other OSPF routers in the network; and provisioning the other OSPF routers in the network to send the TE-LSA messages directly via unicast to only a nearest one of the at least one TE-X, and to query only the nearest one of the at least one TE-X for an explicit route to an edge router in the network.

For reasons set forth above in detail, Dobbins et al. teach away from the hierarchical network structure defined by the method claimed in claim 30. The rejection of claims 30-37 is thereby traversed.

Claim 38 is amended to claim a data network that uses OSPF routing protocol comprising: a plurality of OSPF routers, at least one of the OSPF routers being provisioned to function as a traffic engineering route exchange router (TE X); and a remainder of the routers being provisioned to send traffic engineering link-state advertisement (TE-LSA) messages directly via unicast to only a nearest one of the at least one TE-X, to enable the nearest TE-X to maintain a traffic engineering link-state database (TE-LSDB) for computing explicit routes between edge routers in the data network.

Amended claim 38 therefore claims a hierarchical network structured so that OSPF routers are provisioned to send traffic engineering link-state advertisement messages directly via unicast to only a nearest one of at least one TE-X (in the network) to enable the nearest TE-X to maintain a traffic engineering link state database for computing explicit routes between edge routers in the data network. For reasons set forth above in detail, Dobbins et al. teach directly away from the claimed invention. Although Dobbins et al. attempt to significantly reduce the amount of broadcast traffic in the network, they teach that broadcast/multicast packets and unknown destinations need to be flooded (column 6, lines 11 and 12). The principle tool used by Dobbins et al. to minimize broadcast traffic is the autonomous OSPF routers. This teaches directly away from the network claimed in claim 38, and the rejection of claims 30-40 and 45 is traversed.

Claim Rejections -35 U.S.C. § 103(a)

Claims 10-12 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Dobbins et al. in view of Crawley et al. For reasons set forth above in detail, Dobbins et al. teach directly away from the invention claimed in claims 10-12.

As explained in the response filed March 11, 2004, Crawley et al. teach a system for providing quality of service routing functions in a connectionless network having multiple nodes. The system generates a link resource advertisement for each node in the network. Each link resource advertisement includes information regarding link resources available on a particular node in the network. The system also generates resource reservation advertisements for each node in the network. Each resource reservation advertisement includes information regarding a particular node's current reservation for a data flow. Network paths are calculated in response to a quality of service request. The calculations are performed based on information contained in the link resource advertisements and resource reservation advertisements. Thus, Crawley et al. teach extending QoS to OSPF (column 4, lines 55-63). Consequently, the resource reservation advertisements are **broadcast** to all other nodes in the network (column 5, lines 14-19).

It is therefore clear to any person skilled in the art that the combination of Dobbins et al. and Crawley et al. teaches away from the claimed invention and the rejection of claims 10-12 is therefore traversed.

Claims 14-16 remain rejecting under 35 U.S.C. 103(a) as being unpatentable over Dobbins et al. in view of Casey et al. As pointed on in the response filed March 11, 2004, Casey et al. teach a virtual private network that enables private communications between two or more private networks over a shared MPLS network. The virtual private network includes multiple routers connected to the shared MPLS network and configured to dynamically distribute VPN information across the shared MPLS network. The VPN information includes a VPN identifier assigned to that route, which identifies a VPN with which the router is associated. The router includes a first table that stores a map of the label switched paths from the router in question to all other routers connected to the shared MPLS network. The router also includes a second table that stores a map of label switched paths from the router in question to all other routers connected to the shared MPLS network which share a common VPN identifier.

Casey et al. likewise teach a "flat network" that is similar to the one taught by Dobbins et al. The combination of Dobbins et al. and Casey et al. therefore teaches away from the invention claimed in claims 14-16 and the rejection of those claims is traversed.

Claims 18-19 and 41-44 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Dobbins et al. in view of Tappan.

As explained in the response filed March 11, 2004, Tappan teaches a communications-networking autonomous system consisting of an OSPF domain, autonomous-system border routers that cause exchange of hierarchical forwarding labels whose hierarchies are based on OSPF areas. A border router transmits into the domain an OSPF LSA Update message containing an AS-External LSA whose External Route Tag field other routers interpret as specifying a label to be used for forwarding. When that OSA is flooded into the OSPF domain, area border routers respond by flooding new LSAs

created from the received one by replacing the label contained in the External Route Tag field with labels that specify the forwarding tables' locations containing information for forwarding to the originating autonomous system border router.

It is therefore abundantly clear that Tappan, like Dobbins et al., Crawley et al. and Casey et al. teaches the flooding of messages to every node in the network. The combination of Dobbin et al. and Tappan therefore teaches away from the invention claimed in claims 18-19 and 41-44. The rejection of those claims is thereby traversed.

In the Response to Arguments, the Office Action refers to isolated passages extracted from the cited references without consideration of the context or the teaching of the cited references as a whole. Nor is there any expression of understanding or appreciation of the claimed invention. The claims of this application have now been amended to yet more clearly and unequivocally distinguish over the teachings of the cited references. This application is therefore considered to be in a condition for immediate allowance. Favourable reconsideration and early issuance of a Notice of Allowance are requested.

Respectfully submitted,
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